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MOVING RISK FACTORS INTO DEVELOPMENTAL THEORIES OF GANG MEMBERSHIP

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Several quantitative longitudinal studies of youth gang members—particularly those embedded in well-designed studies of large, representative samples of children and adolescents—have expanded interest in risk factors for gang membership. Drawing on recent research findings, this article aims to review and synthesize risk factors for gang involvement and to integrate these in a theoretical explanation of youth gang membership. Research-supported risk factors from other studies are combined with variables in Thornberry et al.'s interactional theory of gang membership to form a broader developmental theory of gang involvement. Program and policy implications are also drawn.

Keywords: *youth gang; risk factors; theory; developmental*

Knowledge of risk factors for youth gang membership has grown exponentially during the past decade. The expanded breadth of this research literature is owed mainly to recent gang research on two fronts. Gang member studies were imbedded within four large-scale longitudinal studies of adolescents in Denver, Colorado (Denver Youth Survey), Rochester, New York (Rochester Youth Development Study), Pittsburgh, Pennsylvania (Pittsburgh Youth Study), and Seattle, Washington (Seattle Social Development Project).[1] Second, youth gang studies using other types of research designs, including ethnographic studies (e.g., Decker & Van Winkle, 1996; Horowitz, 1983; W. B. Miller, Geertz, & Cutter, 1962; Moore, 1978, 1991; Moore & Hagedorn, 2001; Short, 1974, 1996; Vigil, 2002) and cross-sectional adolescent surveys (Curry, 2000; Curry & Spergel, 1992; Decker & Curry, 2000; Esbensen, 2000; Esbensen & Deschenes, 1998; Gottfredson & Gottfredson, 2001; Le Blanc & Lanctot, 1998; Lynskey, Winfree, Esbensen, & Clason, 2000; Maxson, Whitlock, & Klein, 1998; Winfree, Bernat, & Esbensen, 2001), have also made important contributions to cumulative knowledge of gang risk factors.

We focus in particular in this review on prospective longitudinal quantitative studies because the level of proof is higher in these kinds of studies.[2] This is because longitudinal research designs permit measurement of the risk factors at an earlier point in time than the

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outcome variable—gang membership in this case. Thus, longitudinal research designs are stronger than cross-sectional studies for determining causal relationships. Because cross-sectional studies measure both risk factors and outcomes at the same point in time, the causal ordering cannot be determined with certainty; what appears to be a predictor could well be an outcome of gang membership. Similarly, sorting out causal factors in ethnographic studies is a particularly difficult task because the focus of these observational studies is on gang life, not on distinguishing adolescents who join from those who do not (Eitle, Gunkel, & Gundy, 2004).

We examine recent research on risk factors for gang membership within the context of Thornberry and colleagues' (Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003; Thornberry, Lizotte, Krohn, Smith, & Porter, 2003) theoretical model of gang membership, itself an extension of Thornberry's interactional theory of delinquency (Thornberry, 1987; Thornberry & Krohn, 2001). Their new gang membership interaction theory adopts a life-course perspective that we attempt to expand with a broader developmental theory of gang involvement that takes into account risk factors for delinquency that precede gang membership, often by several years. We view gang involvement as a stepping stone in individual delinquent careers.

We also make some observations on the program and policy relevance of gang membership risk factors. What is the value of knowing the risk factors for gang membership? How can they be addressed in programming? What are the implications for gang control policy?

Protective Factors for Gang Membership

We do not consider here the influence of protective factors because research on their effects on gang membership, and delinquency as well, is yet in its infancy.[3] In general, research on protective factors has been slower to develop than research on risk factors in part because of conceptual issues. Factors traditionally have been designated as either risk factors or protective factors; however, recent research shows that some factors may have risk effects but no protective effects, and other factors may have both effects (Stouthamer-Loeber, Wei, Loeber, & Masten, 2004). There also is evidence that, like risk factors, protective factors may have main effects on delinquency. There are other protective factor research issues (Stouthamer-Loeber et al., 2004) including ambiguity about variables that are associated with better and worse outcomes within high-risk groups, use of the term in inconsistent ways, and researchers who have sometimes focused more on concurrent rather than predictive protective factors. Numerous possible protective factors have been suggested in the gang literature (Bjerregaard & Smith, 1993; Esbensen, Huizinga, & Weiher, 1993; Hill, Howell, Hawkins, & Battin-Pearson, 1999; Howell, 2004; Maxson et al., 1998; Thornberry, Krohn, et al., 2003; Walker-Barnes & Mason, 2001; Whitlock, 2002; Wyrick, 2000). Unfortunately, the gang field is far from reaching consensus with respect to evidence-based protective factors, hence we cannot justify including them here because our aim is to synthesize research-supported variables. Nevertheless, research on protective factors for gang involvement is important because it has been demonstrated in the broader field of juvenile delinquency that problem behaviors are significantly more likely to occur when individuals experience a preponderance of risk factors over protective factors in the major developmental domains (Browning & Huizinga, 1999; Smith, Lizotte, Thornberry, & Krohn, 1995; Stouthamer-Loeber et al., 2004).

Summary Findings From Longitudinal Risk Factor Studies of Gang Membership

Researchers organize the risk factors for serious and violent delinquency according to five developmental domains (sometimes called risk factor levels): individual, family, school, peer group, and community. This framework has its origins in developmental psychologist Bronfenbrenner's (1979) conceptualization of the different spheres of influence that affect a child's behavior, namely relations in the family, the peer group, and the schools. Subsequent research on risk factors for adolescent problem behaviors added two other important risk factor domains: individual characteristics and community conditions (Hawkins, Catalano, & Miller, 1992). Indeed, research shows that risk and protective factors in these five domains function as predictors of juvenile delinquency, violence, and gang membership at different stages in social development as affected by the timing of the respective spheres of influence (Loeber & Farrington, 1998; Thornberry, Krohn, et al., 2003).[4] Although multiple pathways to gang membership are conceivable, a developmental model that includes the gang pathway is useful for marking stages or transitions in offender career development.

Recent youth gang research has produced three seminal findings with respect to the effect of risk factors on the likelihood of gang membership. First, risk factors for gang membership span all five of the risk factor domains (family, peer group, school, individual characteristics, and community conditions). In Seattle, risk factors measured at ages 10 to 12 in each of the five domains predicted gang joining at ages 13 to 18 (Hill et al., 1999). Second, risk factors have a cumulative effect; that is, the greater the numbers of risk factors experienced by the youth, the greater the likelihood of gang involvement. For example, youth in Seattle possessing seven or more risk factors were 13 times more likely to join a gang than were children with no risk factor indicators or only one risk factor indicator (Hill et al., 1999). Third, the presence of risk factors in multiple developmental domains appears to further enhance the likelihood of gang membership. For youth in the Rochester study (Thornberry, Krohn, et al., 2003; Thornberry, Lizotte, et al., 2003), a majority (61%) of the boys and 40% of the girls who exhibited elevated risk in all domains self-reported gang membership. In contrast, only one third of the boys and one fourth of the girls who experienced risk in a simple majority of the domains joined a gang. Thus, gang theories not only need to address multiple risk factors, they also need to address risk factors in multiple developmental domains.

Thornberry and Colleagues' Path Model of the Origins of Gang Membership

Thornberry and colleagues' (Thornberry, Krohn, et al., 2003; Thornberry, Lizotte, et al., 2003) path model of the origins of gang membership for males, derived from their own interaction theory (Thornberry, 1987; Thornberry & Krohn, 2001), contains three fundamental premises (Thornberry & Krohn, 2001, p. 292). First, their theory adopts a developmental or life-course perspective that posits that the causes of behavior are not set or determined in childhood. Rather, "behavior patterns continue to unfold and change across the person's life, in part because of the consequences of earlier patterns of behavior" (Thornberry, Krohn, et al., 2003, p. 83). Second, their theory emphasizes behavioral interactions and bidirectional causality: "Behavior patterns emerge from interactions between the per-

son and his or her environment and not simply from the environment acting upon the individual" (Thornberry & Krohn, 2001, p. 293). Third, their theory incorporates the effect of both social structural influences and social-psychological processes, whereby the former "influences and to some extent determines the initial values of process variables at early stages in the life course" (p. 293).

Stated briefly, the causal model of gang involvement in Thornberry and colleagues' (Thornberry, Krohn, et al., 2003, pp. 83-86) interactional theory of gang membership begins with the more distal structural variables and progresses to the more proximal processual variables. Thus, neighborhood-level variables (e.g., disorganization, concentrated disadvantage, poverty) and family-structural variables (e.g., parental education, family structure) generally exert influence on the risk of gang membership indirectly through the inhibition and/or attenuation of prosocial bonds. The weakening of conventional bonds (e.g., parental and school attachment) elevates risk for antisocial influences (e.g., delinquent peer association), the internalization of antisocial values (e.g., delinquent beliefs), and such precocious behaviors as early dating. The cumulative effect of disadvantage moving from more distal to more proximal variables in turn increases levels of acting out, individual stress, and involvement in delinquency. Consequently, antisocial influences, delinquent behaviors, and life stressors (negative life events) increase the chances that the excitement, protection, and other perceived social benefits of gang membership "will be viewed as a viable means of adjustment to the adolescent's somewhat bleak world" (p. 86).[5]

Thornberry and colleagues (Thornberry, Krohn, et al., 2003) tested their path model in a series of logistic regression equations for males in the Rochester study. The overall results provided considerable empirical support for this adapted version of Thornberry's (1987) interactional theory. As hypothesized by the authors, the initial effect of the more distal structural variables decreased as the more proximal process variables were added sequentially to the model.[6] The authors summarize the results by noting: "A large part of the initial effects of the structural variables is indirect . . . flowing through later process variables" (Thornberry, Krohn, et al., 2003, p. 93). Two variables, school performance and antisocial influences, largely mediated structural disadvantage effects on gang membership (p. 93).

Thornberry and colleagues' (Thornberry, Krohn, et al., 2003) gang membership theory needs to be tested in other cities. As they aptly note, the gang phenomenon in Rochester may be different in some important respects compared to longer standing gang problem cities such as Chicago or Los Angeles, where gang involvement is often intergenerational (see the discussion on this point in Thornberry, Krohn, et al., 2003, pp. 189-192). Causal processes may also be different in late gang problem onset localities. The overwhelming majority of gang problem localities first experienced the emergence of gangs within the last 15 years of the 20th century (Howell, Egley, & Gleason, 2002), and the youth gangs in the newer gang problem localities are distinctly different in their demographic characteristics and patterns of criminal involvement from the gangs in the jurisdictions where gang problems began much earlier. Klein and Maxson (1996) also provide evidence that younger gangs noticeably differ from older gangs across a number of structural attributes (e.g., size, age range, subgrouping, and territoriality).

Thornberry and colleagues' (Thornberry, Krohn, et al., 2003) gang membership theory also needs to be tested for girls; it was examined only for boys in the study sample because of an insufficient number of female cases. However, the researchers did include girls in their bivariate analyses of risk factors, and although tentative, the pattern of findings across risk factor domains was notably similar to that of males in the study. Male gender re-

mains a stronger predictor of gang involvement, but attention to female involvement has increased in recent years. In some localities, girls represent between one fourth and one third of current gang members (Esbensen & Deschenes, 1998; Esbensen, Deschenes, & Winfree, 1999; Esbensen & Winfree, 1998; Thornberry, Krohn, et al., 2003).

An Extension of Thornberry and Colleagues' Gang Membership Theory

Before proceeding in this endeavor, two caveats are in order. First, our theoretical focus pertains solely to gang joining. We do not attempt to explain why gangs form in communities (for broad community-level explanations, see Fleisher, 1998; Moore, 1998; Thrasher, 1927/2000). Nor do we attempt to explain the escalation and de-escalation of gang delinquency and violence (see Decker, 1996, for a discussion of this group-level phenomenon).

The principal modification we propose is an extension of Thornberry and colleagues' (Thornberry, Krohn, et al., 2003) theory downward to younger age groups, specifically from preschool age through childhood, because their theory was tested on teenage boys, ages 13 and older. Other gang risk factor studies have included preteens. The youngest participants in two gang member risk factor studies, in Seattle (Hill et al., 1999) and Montreal (Craig, Vitaro, & Tremblay, 2002), were 10-year-olds. Several elements of Thornberry and colleagues' (Thornberry, Krohn, et al., 2003) gang theory have been tested in other sites, as seen Table 1. The theoretical significance of many of these risk factors is discussed below. We also draw on ethnographic and cross-sectional studies that help explain how particular risk factors may operate. Several of the study sites included females, thus the expanded theoretical model may have applicability for girls and boys. This, of course, is an empirical issue.

To extend the age span of Thornberry and colleagues' (Thornberry, Krohn, et al., 2003) gang membership theory downward, our developmental model (see Figure 1) encompasses antecedents of gang membership from birth through adolescence.[7] Studies suggest that antecedents of gang involvement begin to come into play long before youths reach a typical age for joining a gang. For the highest-risk youth, a stepping-stone pattern appears to begin as early as ages 3 to 4 with the emergence of conduct problems, followed by elementary school failure at ages 6 to 12, delinquency onset by age 12, gang joining around ages 13 to 15, and serious, violent, and chronic delinquency onward from midadolescence.[8] This complete sequence, incorporating gang involvement, has not been fully demonstrated empirically. However, there is strong research support for the remaining transitions, from one stage of problem behaviors and delinquency to the next (Loeber & Farrington, 1998, 2001a). For example, Loeber's (Loeber et al., 1993) Pathways Model, which has gained substantial empirical support (Howell, 2003, p. 53), illustrates key stepping stones in escalating delinquent behavior, beginning with stubborn behavior, defiance, and disobedience in early childhood. Children who display these behaviors are at risk for later avoidance of authority figures, including truancy and running away from home, which in turn places them at increased risk for progressing along overt (violent) and covert (property crime) pathways that include more serious behavior. Gang involvement (physical fighting) is an intermediate step in Loeber's overt pathway.

We include factors contained in Thornberry and colleagues' (Thornberry, Krohn, et al., 2003, pp. 83-86) interaction theory of gang membership and suggest other factors that

TABLE 1
Risk Factors for Gang Membership in Prospective Longitudinal Studies

Community or neighborhood risk factors
- Availability of or perceived access to drugs (Hill, Howell, Hawkins, & Battin-Pearson, 1999)
- Neighborhood youth in trouble (Hill et al., 1999)
- Community arrest rate (Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003)
- Feeling unsafe in the neighborhood (Kosterman et al., 1996)
- Low neighborhood attachment (Hill et al., 1999)
- Neighborhood residents in poverty or family poverty (Hill et al., 1999; Thornberry, Krohn, et al., 2003)
- Availability of firearms (Bjerregaard & Lizotte, 1995; Lizotte, Krohn, Howell, Tobin, & Howard, 2000; Lizotte, Tesoriero, Thornberry, & Krohn, 1994; Thornberry, Krohn, et al., 2003)
- Neighborhood disorganization (Thornberry, 1998; Thornberry, Krohn, et al., 2003)
- Neighborhood drug use (Thornberry, Krohn, et al., 2003)

Family risk factors
- Family structure (Hill et al., 1999[a]; Thornberry, Krohn, et al., 2003)
- Family poverty (Hill et al., 1999; Thornberry, Krohn, et al., 2003)
- Family transitions (Thornberry, Krohn, et al., 2003)[b]
- Family financial stress (Eitle, Gunkel, & Gundy, 2004)
- Sibling antisocial behavior (Hill et al., 1999)
- Low attachment to parents or family (Eitle et al., 2004; Thornberry, Krohn, et al., 2003)
- Child maltreatment (Thornberry, Krohn, et al., 2003)
- Low parent education level (Thornberry, Krohn, et al., 2003)
- Parent proviolent attitudes (Hill et al., 1999)
- Family management: low parent supervision, control, or monitoring (Hill et al., 1999; Lahey, Gordon, Loeber, Stouthamer-Loeber, & Farrington, 1999[c]; Thornberry, Krohn, et al., 2003)
- Teenage fatherhood (Loeber et al., 2003)

School risk factors
- Low achievement in elementary school (Craig, Vitaro, & Tremblay, 2002; Hill et al., 1999)
- Negative labeling by teachers (as either bad or disturbed) (Esbensen, Huizinga, & Weiher, 1993)
- Low academic aspirations (Bjerregaard & Smith, 1993; Hill et al., 1999; Thornberry, Krohn, et al., 2003)
- Low school attachment (Hill et al., 1999)
- Low attachment to teachers (Thornberry, Krohn, et al., 2003)
- Low parent college expectations for participant (Bjerregaard & Smith, 1993; Thornberry, Krohn, et al., 2003)
- Low degree of commitment to school (Thornberry, Krohn, et al., 2003)
- Low math achievement test score (Thornberry, Krohn, et al., 2003)
- Identified as learning disabled (Hill et al., 1999)

Peer group risk factors
- Association with peers who engage in delinquency or other problem behaviors (Bjerregaard & Lizotte, 1995; Bjerregaard & Smith, 1993; Eitle et al., 2004; Hill et al., 1999; Lahey et al., 1999[c])
- Association with aggressive peers (Craig et al., 2002; Lahey et al., 1999[c])

Individual risk factors
- Violence involvement (Hill et al., 1999; Thornberry, Krohn, et al., 2003)
- General delinquency involvement (Curry, 2000; Hill et al., 1999; Esbensen & Huizinga, 1993; Thornberry, Krohn, et al., 2003)
- Aggression or fighting (Craig et al., 2002; Lahey et al., 1999[c])
- Conduct disorders[d] (Lahey et al., 1999)
- Externalizing behaviors (disruptive, antisocial, or other conduct disorders; Craig et al., 2002; Hill et al., 1999)
- Early dating (Thornberry, Krohn, et al., 2003)
- Precocious sexual activity (Bjerregaard & Smith, 1993; Thornberry, Krohn, et al., 2003)
- Antisocial or delinquent beliefs (Hill et al., 1999; Thornberry, Krohn, et al., 2003)
- Hyperactive (Craig et al., 2002; Hill et al., 1999)
- Alcohol or drug use (Bjerregaard & Smith, 1993; Hill et al., 1999; Thornberry, Krohn, et al., 2003; Thornberry, Krohn, Lizotte, & Chard-Wierschem, 1993)
- Early marijuana use and early drinking (Hill et al., 1999)

(continued)

TABLE 1 (continued)

Depression (Thornberry, Krohn, et al., 2003)
Life stressors[e] (Eitle et al., 2004; Thornberry, Krohn, et al., 2003)
Poor refusal skills (Hill et al., 1999)

NOTE: Race or ethnicity and gender are excluded.
a. The Social Development Research Group study compared three family structures: no parents in home, one parent only, and one parent plus other adults. The last structure was the strongest predictor.
b. This risk factor predicted stability of gang membership.
c. Significant effects were observed only in early adolescence.
d. As measured in this study, conduct disorder symptoms include bullying, fighting, lying, cruelty toward animals, attacking people, running away from home, fire setting, theft, truancy, and vandalism. Most of these behaviors are illegal and when detected may result in arrest and court adjudication as a delinquent.
e. In the Rochester study, these consisted of failing a course at school, being suspended or expelled from school, breaking up with a boyfriend or girlfriend, having a big fight or problem with a friend, or the death of someone close. Eitle and colleagues (2004) measured different types of violent events, traumas, and other major adverse events that occurred in preadolescents' lives (before age 12).

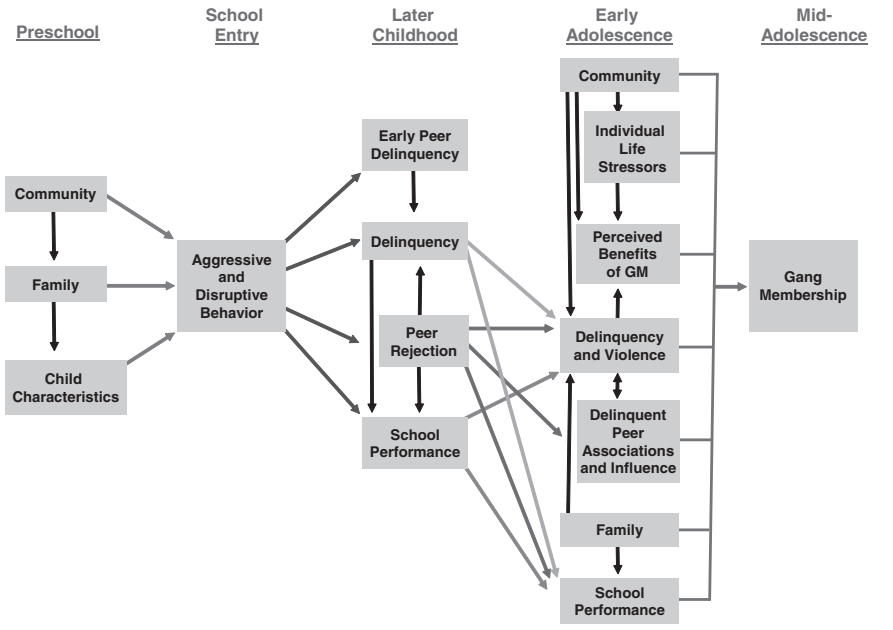

Figure 1. A Developmental Model of Gang Involvement

might strengthen their theory. We incorporate risk factors shown to predict gang membership in other longitudinal studies of gang membership, particularly the Denver Youth Survey, the Rochester Youth Development Study, the Pittsburgh Youth Study, and the Seattle Social Development Project. Table 1 contains risk factors for gang membership from prospective longitudinal studies of representative child and adolescent samples.[9]

Our theoretical model incorporates four developmental stages: preschool, school entry, childhood, and adolescence.[10] Preschool factors predict early child conduct problems such as aggressive and disruptive behavior during school entry (Coie & Miller-Johnson,

2001), and these problem behaviors predict childhood delinquency, which, coupled with other risk factors in all developmental domains, increases the probability of delinquent activity and gang involvement during adolescence. The influence of risk factors for delinquency varies with age (Lipsey & Derzon, 1998; Loeber & Farrington, 1998, 2001a), and by the time youths enter high school, most of the risk factors affecting gang involvement have long been established. We discuss each of the developmental stages in turn.

The Preschool Stage

In this first developmental stage, child characteristics and community and family deficits produce aggressive and disruptive behavior disorders by the time of school entry (Burke, Loeber, & Birmaher, 2002; Coie & Miller-Johnson, 2001; Kalb & Loeber, 2003; Loeber & Farrington, 2001a) and in turn delinquency and school performance problems in later childhood (Loeber & Farrington, 2001a).[11] The theoretical linkage between structural community (macrolevel) factors and delinquency at the individual level is mediated primarily by family variables (Thornberry & Krohn, 2001). We hypothesize that lack of "social capital" (Coleman, 1988, 1990) is an important by-product of "concentrated disadvantage" (McNulty & Bellair, 2003, p. 11) in impoverished, distressed, and crime-ridden communities.[12] We suggest that, when combined with family and child deficits, concentrated disadvantage increases the odds of disruptive behavior disorders in children by the time of school entry and of delinquency later during childhood. Families with a harsh child punishment profile are overrepresented in such disadvantaged neighborhoods, and serious delinquency tends to occur more quickly in youngsters residing in these communities (Loeber et al., 2003).

When linked with certain family and child characteristics, concentrated disadvantage impedes socialization of children (Loeber et al., 2003; Tremblay, 2003). Important family variables in the preschool stage include low parental education (human capital) and a host of family problems (Loeber & Farrington, 2001a) including a broken home, parental criminality, poor family or child management, abuse and neglect, serious marital discord, and young motherhood (Pogarsky, Lizotte, & Thornberry, 2003). Pivotal child characteristics during the preschool period include a difficult temperament and impulsivity, typically described as aggressive, inattentive, and sensation-seeking behaviors (Keenan, 2001; Loeber & Farrington, 2001a).

Taken together, concentrated disadvantage at the community level, family problems, and certain child characteristics lead to early childhood problems (aggression and disruptive behavior), and each of these four variables in turn increases the likelihood of delinquency in childhood and gang membership in adolescence.

The School Entry Stage

Early childhood aggression and disruptive behaviors (Coie & Miller-Johnson, 2001) including stubbornness, defiance, disobedience, and truancy following school entry are products of dysfunctional families (Kalb & Loeber, 2003), particularly in disadvantaged communities. Aggressive and disruptive behaviors are likely to be followed by rejection by prosocial peers, thus opening the door to antisocial or deviant peer influences, which predict delinquent activity in later childhood and early adolescence (Coie & Miller-Johnson, 2001). The link between physical aggression in childhood and violence in adolescence is particularly strong (Brame, Nagin, & Tremblay, 2001; Broidy et al., 2003).

It is important to note that most disruptive children do not become child delinquents, nor do most child delinquents engage in delinquency in adolescence (Loeber & Farrington, 2001a). From one fourth to one third of disruptive children are at risk of becoming child delinquents, and about a third of all child delinquents later become serious, violent, and chronic offenders.[13] However, as Thornberry and Krohn (2001) note, "the earlier the onset, the greater the continuity" (p. 297).

The Later Childhood Stage

In the third developmental stage, later childhood, other risk factors (causal variables) that explain gang membership begin to come into play. Children who are involved in delinquency, violence, and drug use at an early age are at higher risk for gang membership than are other youngsters (Craig et al., 2002; Hill et al., 1999; Lahey, Gordon, Loeber, Stouthamer-Loeber, & Farrington, 1999). More than one third of the child delinquents in the Montreal and Rochester samples became involved in crimes of a more serious and violent nature during adolescence, including gang fights (Krohn, Thornberry, Rivera, & Le Blanc, 2001). As Thornberry and Krohn (2001) state, "In brief, very early onset offending is brought about by the *combination and interaction* of structural, individual, and parental influences" (p. 295).

Peer rejection in the early school years may lead to greater susceptibility to the influence of deviant peers including more aggressive youths (Coie & Miller-Johnson, 2001, p. 192). Aggressive and antisocial youths begin to affiliate with one another in childhood (Cairns & Cairns, 1991; Coie & Miller-Johnson, 2001), and this pattern of aggressive friendships may continue through adolescence (Cairns & Cairns, 1994). A Montreal study suggests that displays of aggression in delinquent acts, at age 10 or perhaps younger, may be key factors leading to gang involvement (Craig et al., 2002). Peers rated gang members as significantly more aggressive than non–gang members at ages 10 to 14.

The negative consequence of delinquent peer associates is one of the most enduring findings in empirical delinquency research (Warr, 2002). Associations with delinquent peers increase delinquency. In turn, involvement in delinquency leads to more frequent associations with delinquent peers (Elliott & Menard, 1996; Thornberry, Lizotte, Krohn, Farnworth, & Jang, 1994). Early peer delinquency thus increases delinquency involvement in later childhood, which in turn increases the likelihood of gang membership in early adolescence (Craig et al., 2002; Eitle et al., 2004; Hill et al., 1999). Weakened social bonds as a result of delinquency may be an important interaction effect of this process (Thornberry & Krohn, 2001).

Poor school performance (poor grades and test scores) in later childhood is likely to result from prosocial peer rejection, child delinquency, and family problems (Thornberry & Krohn, 2001). Other school-related variables that lead to gang involvement include low achievement in elementary school (Craig et al., 2002; Hill et al., 1999) and low school attachment and having been identified as learning disabled (Hill et al., 1999).

Factors that weaken the student-school bond (commitment to school) in the later childhood stage contribute to delinquency and gang membership. The poor school performance of children is one side of the coin; poor-quality schools (poorly organized and functioning) are the other side (Durlak, 1998). A contemporary indicator of poor-quality schools is zero-tolerance policies that produce high suspension, expulsion, and dropout rates. In addition to alienating students from schools and teachers, thus weakening the student-school

bond, these policies release many youths from adult supervision during the day and after school, potentially exposing them to deviant influences on the streets (Vigil, 2002).

The Early Adolescence Stage

The remainder of our expanded theoretical model incorporates only risk factors that predict gang involvement. Children who are on a trajectory of worsening antisocial behavior are more likely to join gangs during adolescence (Esbensen & Huizinga, 1993; Hill et al., 1999; Lahey et al., 1999), and they tend to have more problems than do non–gang members (Craig et al., 2002). Gang entry might be thought of as the next developmental step in escalating delinquent behavior (Esbensen & Huizinga, 1993; see also Lahey et al., 1999). Future gang members not only evidence a large number of risk factors (Hill et al., 1999), they are likely to show risk factors in multiple developmental domains (Thornberry, Krohn, et al., 2003) including community or neighborhood, family problems, school problems, delinquent peer influence, and individual characteristics. Each of these risk domains is considered next.

Community or neighborhood risk factors. As Tremblay (2003) states, "As children grow older, they are more and more negatively influenced by their environment" (p. 192). Community or neighborhood risk factors that have been shown to predict gang membership in early adolescence include availability or perceived access to drugs, neighborhood youth in trouble, feeling unsafe in the neighborhood, and low neighborhood attachment (Hill et al., 1999; Kosterman et al., 1996). Other important neighborhood risk factors consist of high community arrest rates, high drug use, and neighborhood disorganization (see Table 1). Availability of firearms may also be an important community variable (Bjerregaard & Lizotte, 1995; Lizotte, Krohn, Howell, Tobin, & Howard, 2000).

Communities that suffer from concentrated disadvantage may lack the necessary collective efficacy (informal control and social cohesion) among residents to ameliorate the negative effects of concentrated disadvantage (Morenoff, Sampson, & Raudenbush, 2001; Sampson, 1997). This condition is likely exacerbated by the prevalence of crime in the community, the availability of drugs, and so on, all that weaken neighborhood attachment.

Family risk factors. Family-level factors can be divided into two groups—structural variables and social process variables. Nonintact family (not living with both biological parents) is a key structural variable, and family management problems typically characterize family process variables. However, structural variables are often mediated by family process variables and thus are typically only indirectly associated with gang membership. For example, for Thornberry and colleagues (Thornberry & Krohn, 2001; Thornberry, Krohn, et al., 2003; Thornberry, Lizotte, et al., 2003), structural adversity affects such factors as parenting deficits and the development of strong family bonds.

Family influences begin to fade in adolescence (Lahey et al., 1999; Lipsey & Derzon, 1998; Thornberry, Lizotte, et al., 2003), and studies do not clearly distinguish the family influences on gang membership that remain in adolescence from those that are potent at an earlier point. In the Rochester study, a nonintact family and low parent education predicted gang membership in early to mid adolescence. Poor parental attachment to child, low parental supervision, and child maltreatment emerged as significant family process variables in the bivariate analysis of risk factors, but only for males (Thornberry, Krohn, et al., 2003,

p. 66). Another family structural variable, family transitions (change in parent figures), predicted stable gang membership in a separate bivariate analysis (Thornberry, Krohn, et al., 2003, p. 71). Only one additional family structure variable (family poverty) has been examined in other longitudinal studies (Hill et al., 1999). Family process variables associated with gang membership in other quantitative longitudinal studies (see Table 1) include sibling antisocial behavior, family financial stress, and parents' proviolent attitudes. Several ethnographic studies suggest that family conflict and child victimization in the home may have greater importance as risk factors for gang membership for girls than for boys (Fleisher, 1998; J. A. Miller, 2001; Moore, 1978; Moore & Hagedorn, 2001).

Important family risk factors for gang involvement are not limited to at-risk youths' families of origin; these also extend to the families that youths create. Among males, teenage fatherhood may predict gang membership (Loeber et al., 2003). Parental criminality may also prove to be an important variable; this factor has not been researched in longitudinal gang member risk factor studies.

School risk factors. Poor school performance on math tests predicts gang membership for males (Thornberry, Krohn, et al., 2003). Other school risk factors identified in the Rochester bivariate analysis include low academic aspirations, low attachment to teachers, low college expectations of the parent for the child, and low degree of commitment to school. Negative labeling by teachers (as either bad or disturbed) is another important predictor (Esbensen et al., 1993). Feeling unsafe at school may also predict gang involvement (Gottfredson & Gottfredson, 2001). Students who feel vulnerable at school may seek protection in a gang.

Peer risk factors. Along with peer delinquency, Thornberry and colleagues (Thornberry, Krohn, et al., 2003; Thornberry, Lizotte, et al., 2003) included delinquent beliefs as a component of antisocial influences in their gang membership theory, and the latter factor proved to be significantly related to gang membership, whereas surprisingly delinquent peers did not. Other studies show that association with delinquent or antisocial peers and aggressive peers during childhood and early adolescence is a predictor of gang membership (see Table 1).

Associates of gang members are also part and parcel of a community's gang problem because of their active involvement in delinquency (Curry, Decker, & Egley, 2002). Theories of gang membership need to account for close associates of gang members because several variables distinguish associates of gang members from nongang youths (Eitle et al., 2004): preteen exposure to stress, early deviance, early peer deviance, and family attachment. Interestingly, increased preteen stress exposure was associated with increased gang involvement in this study even when the remaining three variables were controlled.

Individual risk factors. Studies have identified more risk factors for gang membership in the individual domain than in any other domain (see Table 1). Early involvement in delinquency and violent behavior in the Seattle study and delinquency involvement in early adolescence in the Rochester study predicted gang membership. Both of these studies also show that the risk of gang involvement is elevated for youngsters who use alcohol or drugs, who are involved in other forms of delinquency, and who hold antisocial or delinquent beliefs (Hill et al., 1999; Thornberry, Krohn, et al., 2003). Experiencing life stressors is another important individual risk factor at the early adolescence stage (Eitle et al., 2004; Thornberry, Krohn, et al., 2003).

Violent victimization is another potentially important individual variable (Peterson, Taylor, & Esbensen, 2004), also seen in ethnographic studies (Decker & Van Winkle, 1996; Fleisher, 1998; J. A. Miller, 2001; Moore, 1991). This is a relatively powerful predictor of individual violence (Shaffer & Ruback, 2002), and personal victimization is related to individual involvement in violence and aggression, which are predictors of gang membership (Craig et al., 2002; Hill et al., 1999; Lahey et al., 1999).

Early dating predicted male gang membership in the Rochester gang theory (Thornberry, Krohn, et al., 2003), and this was also significant for females in the bivariate analysis. Precocious sexual activity was a significant risk factor for gang membership among males but not among females in the bivariate analysis in the Rochester study (Thornberry, Krohn, et al., 2003, p. 66). Depression showed a similar pattern. Interestingly, low self-esteem did not prove to be a statistically significant predictor in the Rochester study (p. 66). Also, Denver Youth Survey data show that youth who were involved in drug use, gang involvement, and delinquency tended to have higher self-esteem (Tiet & Huizinga, 2003).

Perceived Benefits of Joining a Gang

Although this is not a risk factor as such, personal reasons for joining a gang are an important source of motivation. Among the various reasons youth give for joining a gang, the following are most common. First, related to social reasons, youth join to be around friends and family members (especially siblings or cousins) who already are part of the gang. Second, regarding protection, youth join for the presumed safety they believe the gang can afford (Decker & Curry, 2000; Decker & Van Winkle, 1996; Peterson et al., 2004; Thornberry, Krohn, et al., 2003). Also reported by youth, albeit far less frequently, are more instrumental reasons for joining a gang such as selling drugs or making money (Decker & Van Winkle, 1996).

Program Implications

What are the program implications of the risk factors for gang membership? In other words, can this information be diffused into practice? How can this be done?

Use of the science-based risk and protection framework of the public health model helps structure the delinquency prevention enterprise in communities (U.S. Department of Health and Human Services, 2001). The public health model is a user-friendly conceptual model for practitioners because of widespread public familiarity with applications in the health arena, such as the prevention of cardiovascular diseases. It has been demonstrated that research-based prevention programs and activities can be successfully promoted by providing community stakeholders with training and technical assistance in risk-protection assessment and strategic prevention planning (Hawkins, Catalano, & Arthur, 2002). Several hundred communities have been successfully engaged in risk- and protection-focused delinquency prevention programming, some with impressive results (Hawkins et al., 2002), but nothing has been reported regarding risk-focused gang prevention programming. The compilation of risk factors for gang membership in this article serves as the basis for such an undertaking.

The comprehensive gang prevention, intervention, and suppression model (Spergel, 1995) is a flexible framework that guides communities in developing and organizing a continuum of programs and strategies. Although the results of a six-site evaluation were mixed,

when it was well-implemented in three of the communities, the comprehensive gang model effectively guided interagency initiatives in Chicago, Illinois, Mesa, Arizona, and Riverside, California, in developing services and strategies that contributed to reductions in gang violence and drug-related offenses (Spergel et al., 2003; Spergel, Wa, & Sosa, 2004).[14] However, general deterrence effects (at the project-area level) were not as strong as the program effects at the individual-youth level. None of the sites attempted to implement risk-focused primary prevention programs; the deliberate emphases in the sites were on intervention and suppression. The successful sites implemented social intervention (outreach and crisis intervention), opportunities provision (education, job, cultural), suppression, and organizational change strategies.

The National Youth Gang Center has developed a strategic planning tool, an operating system, that communities can use to implement the comprehensive gang model and risk-focused prevention (see http://www.iir.com/nygc/). The tool includes research-based risk factors and indicators and information on promising and effective juvenile delinquency and gang programs and strategies that address specific risk factors among various age groups. It incorporates a problem-solving approach to gang-related crime, for example in the engaging of participating sites in an analysis of crime trends involving gang members, in the identification of hot spots, and in the targeting of high-rate gang offenders and violent gangs. To complement the use of the strategic planning tool, an assessment protocol, which any community can use to assess its gang problem and to promote the development of a data-driven continuum of gang prevention, intervention, and suppression programs and strategies, is available (National Youth Gang Center, 2002a). Resource materials that assist communities in developing an action plan to implement the comprehensive gang model are also available (National Youth Gang Center, 2002b). This operating system does not reference the comprehensive gang model as if it were a prescriptive program model; rather, it contains user-friendly tools that empower communities to assess their gang problem, to inventory existing program resources, to identify gaps, and to select preferred solutions from a menu of research-based program and strategy options.

As a general observation, overreliance on one strategy or another is unlikely to produce fundamental changes in the scope and severity of a community's gang problem (Curry & Decker, 2003). Prevention programs are needed to prevent youth from developing problem behaviors, becoming delinquent, and perhaps joining gangs. These can potentially reduce the predominant risk factors for gang involvement and increase protective factors (that are yet to be identified) in each community. Intervention programs are needed to rehabilitate delinquents and separate gang-involved youths from gangs. Suppression activities by law enforcement officers, prosecutors, courts, and correction officers should target the most violent gangs and high-rate gang-involved offenders. There was considerable evidence in the Chicago (Little Village Project) demonstration of the comprehensive gang model that a balanced approach at the individual gang member level contributed to a reduction of violence arrests at the gang and community levels and also improved the perception of residents about the scope and severity of the gang problem (Spergel et al., 2003).

Conclusion

Gang involvement can prove to be a critical turning point in an adolescent's life. It may greatly amplify involvement in serious and violent delinquency, which in turn will likely lead to precocious, off-time, and unsuccessful transitions that could bring disorder to

the life course in a cascading series of difficulties including school dropout, early pregnancy or early impregnation, teen motherhood, and unstable employment (Thornberry, Krohn, et al., 2003, pp. 179-180). Although many risk factors for gang involvement have been demonstrated and reviewed here, they are part of a longer developmental sequence. That is, the accumulation of risk factors in early childhood and adolescence contribute to known risk factors for gang involvement.

As suggested by Thornberry and colleagues (Thornberry, Krohn, et al., 2003), this process is distinctively interactional. To illustrate, structural deficits lead to parental deficits, weakened social bonds, poor school performance, and rejection by prosocial peers, which leads to delinquent peer associations and delinquent beliefs, which leads to delinquency, which further reduces social bonds and enhances delinquent peer associations, which leads to gang involvement and serious, violent, and chronic offending. As Thornberry and colleagues explain, this sequence is not specifically unidirectional but is rather bidirectional where current behaviors are influenced by antecedent risk variables, which in turn diminish the chances of alleviating risk and extricating gang-involved youths from the process leading to seriously antisocial outcomes. Through this evolving bidirectional sequence in which prosocial choices become less and less available, gang involvement becomes an increasingly viable perceived alternative for meeting an adolescent's immediate needs and alleviating stress.

We have offered a developmental model of gang involvement that extends Thornberry and colleagues' (Thornberry, Krohn, et al., 2003) gang theory downward to younger predelinquent and delinquent levels. In building on their pioneering theoretical contribution, our developmental model suggests a broader perspective of gang involvement, beginning with antecedent problem behaviors that emerge in early childhood. Our developmental model adds a theoretical explanation (Coie & Miller-Johnson, 2001) of early childhood problems (aggressive and disruptive behaviors) and links these to problems in later childhood (early peer delinquency, delinquency, peer rejection, and poor school performance) and subsequently to a host of risk factors for gang membership during adolescence. Although our theory rests on the shoulders of Thornberry and Krohn's (2001) developmental theory of delinquency and their theory of gang involvement (Thornberry, Krohn, et al., 2003; Thornberry, Lizotte, et al., 2003), we attempted to extend their theory down to younger age groups by the addition of predictors of delinquency and gang membership from other studies and by suggesting developmental stepping stones to gang involvement.

Risk factor studies will be enriched by continued use of theory to guide empirical inquiries, as exemplified in the empirical test of Thornberry and colleagues' (Thornberry, Krohn, et al., 2003) path theory. Through the attentive practice of specifying theoretical concepts and their relationships (i.e., theoretical propositions) in advance, one can avoid contributing to what Thornberry and colleagues (Thornberry, Krohn, et al., 2003) refer to as "a somewhat atomized view of gang members that is focused on individual variables" (p. 77).

In the same vein, it is important to avoid gang programming that is similarly atomized in the expectation that a single program or strategy (such as an after-school program) will solve the problem. There is no magic bullet for combating gangs. A comprehensive continuum of programs and strategies is needed. Tools that empower communities to systematically assess their gang problem, to inventory existing resources, and to develop and implement a continuum of gang prevention, intervention, and suppression strategies and programs are available.

NOTES

1. See Howell (2003, p. 82) for a listing of the research reports on gang members published to date in the four studies. Pittsburgh Youth Study researchers subsequently published an additional report (Gordon et al., 2004).

2. Longitudinal gang studies are not the only valuable methods, of course, and these are costly and difficult to design and implement. Other gang study methods, including ethnographies, case studies, and cross-sectional surveys, can make valuable contributions toward understanding gang involvement and can also play important roles in the context of community initiatives that combat gangs. For example, cross-sectional student surveys can determine the prevalence of risk factors that need to be addressed in prevention programming and the geographical location of programs. Ethnographic and case studies can be used to describe existing gangs and their activities, thus informing interventions.

3. These are conditions that, presumably, either counter the initial influence of risk factors or increase resilience to them and thus inhibit the development of problems even in the face of risk exposure.

4. It should be noted that risk factors in these domains also predict a variety of other problem behaviors in childhood and adolescence (Loeber & Farrington, 1998, 2001a).

5. The life stressors consist of failing a course at school, being suspended or expelled from school, breaking up with a boyfriend or girlfriend, having a big fight or problem with a friend, and/or the death of someone close.

6. One neighborhood structural variable, area disorganization, did not significantly increase the odds of gang membership. This finding serves as a reminder of the important distinction between the influence community-level factors have on the emergence and character of gang activity and gang membership risk itself (Bursik & Grasmick, 1993). Put differently, most youths in disadvantaged, gang-problem neighborhoods do not join gangs (Klein, 1995).

7. The very early factors (ages 0-3) are not discussed herein. Readers should consult Loeber and Farrington (2001b). Future expansion of our proposed model should take these into account. Readers should note that we do not depict the bidirectional effects in Figure 1. This is an empirical matter.

8. Studies do not clearly specify the typical child delinquency age of onset. In the Rochester sample, the very youngest onset group (onset at 4-10 years of age) had the highest prevalence rate for both serious and violent offenses during the early adult years, roughly ages 19 to 22 (Krohn, Thornberry, Rivera, & Le Blanc, 2001, p. 83). These researchers suggest that "our focus should be on those children who exhibit delinquent behavior during very early school years" (p. 90).

9. Readers are cautioned that citations to more than one study for a given risk factor do not necessarily mean that exact replications have occurred. The given variable could well have been operationalized differently and/or measured using different indicators.

10. The age range for childhood is approximately ages 4 to 12 (which overlaps with the preschool and school-entry periods), and the range for adolescence is ages 13 to 25.

11. Disruptive behavior disorders include conduct disorders such as aggression and oppositional defiant disorder (Burke, Loeber, & Birmaher, 2002).

12. Social capital refers to the quality of social relations in an individual's environment, especially the relations between children and adults that inhibit or facilitate access to resources (Coleman, 1990). Broadly defined, social capital includes the availability of services to children and families (National Research Council, 1993) that facilitate positive youth development (National Research Council & Institute of Medicine, 2002, pp. 6-10). In other words, the absence of social capital has the effect of knifing off developmental opportunities.

13. The Study Group on Very Young Offenders compiled the following list of warning signs for later problems among disruptive children during the preschool years (Loeber & Farrington, 2001b, p. xxiv): (a) disruptive behavior that is either more frequent or more severe than that of other children of the same age; (b) disruptive behavior such as temper tantrums and aggression that persists beyond the first 2 to 3 years of life; and (c) a history of aggressive, inattentive, or sensation-seeking behavior in the preschool years.

14. Drug-related arrests of program clients were not reduced significantly in Riverside.

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